

Translation

PATENT COOPERATION TREATY

PCT Rec'd PCT/PTO 02 AUG 2005

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P610956/WO/1	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/DE2004/000162	International filing date (day/month/year) 03.02.2004	Priority date (day/month/year) 04.02.2003
International Patent Classification (IPC) or national classification and IPC B64C 3/38, 27/46		
Applicant EADS DEUTSCHLAND GMBH		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 1 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/000162

Box No. I

Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-10 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. 2-11 _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1 _____ received by this Authority on 30.11.2004 with letter
- nos.* _____ received by this Authority on of 29.11.2004
- ☒ the drawings:
- sheets 1/2-2/2 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/000162

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-11	YES
	Claims		NO
Inventive step (IS)	Claims	1-11	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1 This report makes reference to the following documents:

D1: US 6 375 127 B1 (APPA KARI)

23 April 2002 (2002-04-23)

D2: WO 02/31378 A (EADS DEUTSCHLAND GMBH; JAENKER

PETER (DE); BEBESEL MARIUS (DE))

18 April 2002 (2002-04-18)

D1, which is considered to represent the prior art closest to the subject matter of claim 1, discloses (the references in parentheses are to this document) a deformable aerodynamic profile (34) (figures 1, 2 and 5-7 and column 5, lines 54-61), which has

- a leading profile area (figure 1) and
- a trailing profile area lying in the backwash (figures 1 and 4), and
- is defined by a pressure-side and a suction-side covering skin which converge in a profile trailing edge (figure 4);
- the profile is provided, at least in places,

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

with piezo actuators (40a-40d, 42a-42d, 44a-44d) for the purpose of deforming the profile (column 6, lines 18-21 and 45-61, and figures 5-7), wherein

- longitudinal deformation of the piezo actuators on exposure to an electrical field occurs essentially in the direction of the planes of the covering skins (column 7, lines 3-19, and figure 5).

The subject matter of claim 1 thus differs from that known from D1 in that the piezo actuators consist of d33 piezo actuators, which consist of longitudinally cut, stacked piezoelectric elements.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

The problem addressed by the present invention may therefore be considered that of providing a flat piezo actuator that is capable of substantial longitudinal deformation.

D2 discloses a d33 piezo actuator for deforming structural components (page 4, lines 9-17, and page 6, line 19 to page 7, line 14) and indicates the advantage of the d33 piezo actuator compared with a d31 piezo actuator as being that the former is capable of greater longitudinal deformation and is more efficient in transmitting force while at

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Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

the same time being smaller in volume (page 2, line 21 to page 3, line 10 and page 4, lines 13-17).

The technical features indicated show that the d33 piezo actuator disclosed in D2 is likewise suited to deforming an aerodynamic profile.

However, neither D2 nor any other citation in the search report suggests the use of a longitudinally cut, stacked d33 piezo actuator in order to reduce overall height.

Therefore, the subject matter of claim 1 involves an inventive step (PCT Article 33(3)).

Claims 2-11 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and independent step.

Observations

- 3 Contrary to PCT Rule 5.1(a)(ii), the description does not cite D1-D2 or indicate the relevant prior art disclosed therein.
- 4 The description should be brought into line with the amended claims.